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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,475	10/17/2001	Adam T. Lake	10559-580001/P11134	7046

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EXAMINER

CUNNINGHAM, GREGORY F

ART UNIT PAPER NUMBER

2676

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,475

Applicant(s)

LAKE ET AL.

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Examiner

Greg Cunningham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

1. This action is responsive to communications of application filed 10/17/2001.
2. The disposition of the claims is as follows: claims 1-30 are pending in the application. Claims 1, 7, 11, 17, 21 and 27 are independent claims.
3. The group and/or Art Unit location of your application has changed. To aid in the correlation of any papers for this application, all further correspondence should be directed to Group Art Unit 2676 (effective 7/03). Please be sure to use the most current art unit number on all correspondence to help us route your case and respond to you in a timely fashion.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 4, 14 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “grow” in claims 4, 14 and 24 is used by the claim to mean “outward polygon projections”,

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while the accepted meaning is “gradual increase in size.” The term is indefinite because the specification does not clearly redefine the term.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1-3, 5, 11-13, 15, 21-23 and 25 are rejected under 35 U.S.C. 102(a) as being disclosed by Wu et al., (US Patent Publication Number 20020061194 A1), hereafter Wu.

A. Per claim 1, Wu discloses “A computer-implemented method of generating a shadow for a three-dimensional model having an infrastructure that includes a bone, the method comprising: projecting the bone onto a surface; and generating the shadow on the surface based on a projection of the bone” in para. [0005] – [0007], and [0013] – [0014]. Wherein wire frame corresponds to bone and color tone corresponds to shadow.

B. Per claim 2, Wu discloses “The method of claim 1, further comprising locating a virtual light source in an environment that the three-dimensional model inhabits; wherein projecting the bone comprises: drawing lines from the virtual light source, through points on the bone, onto the surface; and connecting points at which the lines intersect the surface” supra for claim 1.

Wherein beam source corresponds to virtual light source, projection beam corresponds to drawing lines, and wire frame corresponds to connecting points.

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C. Per claim 3, Wu discloses "The method of claim 1, wherein generating the shadow comprises: creating a shape over at least part of the projection of the bone; and mapping texture onto the shape" supra for claim 1, and in abstract. Wherein patch corresponds to part of the projection.

D. Per claim 5, Wu discloses "The method of claim 1, wherein mapping texture onto the shape comprises mapping a fuzzy texture onto edges of the shape" supra for claim 1. Wherein soft shadow corresponds to fuzzy shadow.

E. Per independent claims 11 and 21, these are directed to a machine-readable medium and apparatus, respectively, for performing the method of independent claim 1, and therefore are rejected to independent claim 1.

F. Per dependent claims 12, 13, 15, 22, 23 and 25, these are directed to a machine-readable medium and apparatus, respectively, for performing the method of dependent claims 2, 3 and 5, and therefore are rejected to dependent claims 2, 3 and 5.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4, 6, 14, 16, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu as applied to claim 3 above, and further in view of Nakamura et al., (US 20010024326 A1), hereafter Nakamura.

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A. Per claim 4, Wu discloses “The method of claim 3, wherein creating the shape comprises growing a polygon from the projection of the bone” supra for claim 1. However Wu does not appear to disclose “wherein creating the shape comprises growing a polygon from the projection of the bone”, but Nakamura does in para. [0105].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply shadow generation disclosed by Wu in combination with growing segments via projections disclosed by Nakamura, and motivated to combine the teachings because display devices which enlarge and project an image on a screen are projection-type displays as revealed by Nakamura in para. [0005].

B. Per claim 6, Wu discloses “The method of claim 1, further comprising receiving data that corresponds to a size and shape of the shadow; wherein the shadow is generated based on the data” supra for claim 1. However Wu does not appear to disclose, “further comprising receiving data that corresponds to a size of the shadow; wherein the shadow is generated based on the data”, but Nakamura does in para. [0105].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply shadow generation disclosed by Wu in combination with size and shape disclosed by Nakamura, and motivated to combine the teachings because display devices which enlarge and project an image on a screen are projection-type displays as revealed by Nakamura in para. [0005].

C. Per dependent claims 14, 16, 24 and 26, these are directed to a machine-readable medium and apparatus, respectively, for performing the method of dependent claims 4 and 5, and therefore are rejected to dependent claims 4 and 6.

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10. Claims 7-9, 17-19 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu and further in view of Jacobs et al., (US 20030011619 A1), hereafter Jacobs.

A. Per claim 7, Wu discloses “A computer-implemented method of generating a shadow for a three-dimensional model having an infrastructure that includes a bone, the method comprising: generating a bounding volume for the bone; and generating the shadow by projecting a shape of the bounding volume onto a surface” supra for claim 1. However Wu does not appear to disclose “generating a bounding volume for the bone; and generating the shadow by projecting a shape of the bounding volume onto a surface”, but Jacobs does in para. [0032], particularly at “bounding shadow is the projection of the bounding box”. Wherein bounding box corresponds to bounding volume.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply shadow generation disclosed by Wu in combination with bounding shadow is the projection of the bounding box disclosed by Jacobs, and motivated to combine the teachings because the two images are essentially overlaid or merged when projected as disclosed by Jacobs in para. [0002].

B. Per claim 8, Wu discloses “The method of claim 7, further comprising locating a virtual light source in an environment that the three-dimensional model inhabits; wherein projecting the shape comprises: drawing lines from the virtual light source, through locations on a surface of the bounding volume, onto the surface; and connecting points at which the lines intersect the surface” supra for claims 1, 2 and 7. However Wu does not appear to disclose “on a surface of the bounding volume, onto the surface”, but Jacobs does implicitly in [0032]. Wherein bounding

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box corresponds to bounding volume; virtual light source, drawn lines and connecting points are inherent to Jacobs' bounding box projection in a virtual world.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply shadow generation disclosed by Wu in combination with bounding box projection disclosed by Jacobs, and motivated to combine the teachings because the bounding box image is essentially overlaying as shadow when projected as disclosed by Jacobs in para. [0002].

C. Per claim 9, Wu discloses "The method of claim 7, wherein generating the shadow further comprises mapping a texture onto the shape of the bounding volume projected onto the surface" supra for claims 1, 3 and 7. However Wu does not appear to disclose "mapping a texture onto the shape of the bounding volume projected onto the surface", but Jacobs does supra for claim 8 and in para. [0044], particularly at "when the simulated viewpoint is in a particular predefined area in the visual database, determines what should be seen in that area, and loads in the textures required".

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply shadowing disclosed by Wu in combination with bounding box projection and required texturing disclosed by Jacobs, and motivated to combine the teachings because the bounding box shadowing with texture is merging multiple independently generated images into a seamless combined image as disclosed by Jacobs in para. [0002].

D. Per dependent claims 17-19 and 27-29, these are directed to a machine-readable medium and apparatus, respectively, for performing the method of dependent claims 7-9, and therefore are rejected to dependent claims 7-9.

11. Claims 10, 20 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu as applied to claim 3 above, further in view of Nakamura et al., (US 20010024326 A1), hereafter Nakamura, and further in view of Jacobs et al., (US 20030011619 A1), hereafter Jacobs.

A. Per claim 10, Wu and Jacobs disclose, “The method of claim 7, further comprising receiving data that corresponds to a size and shape of the shadow; wherein the shadow is generated based on the data” supra for claims 1 and 7. However Wu and Jacobs do not appear to disclose “further comprising receiving data that corresponds to a size and shape of the shadow; wherein the shadow is generated based on the data”, but Nakamura does supra for claim 6. Also wherein in Jacobs, projected shadow inherently has shape and size data.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply shadow generation disclosed by Wu and Jacobs in combination with size and shape disclosed by Nakamura, and motivated to combine the teachings because display devices which enlarge and project an image on a screen are projection-type displays as revealed by Nakamura in para. [0005].

B. Per dependent claims 20 and 30, these are directed to a machine-readable medium and apparatus, respectively, for performing the method of dependent claim 10, and therefore are rejected to dependent claim 10.

Responses

12. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 308-9051 may be used for formal communications or (703) 308-6606 for informal or draft communications.

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Please label "PROPOSED" or "DRAFT" for informal facsimile communications. Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Inquiries

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Cunningham whose telephone number is (703) 308-6109.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached on (703) 308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

J.F. Cunningham

gfc

July 1, 2003

Matthew C. Bella

**MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600**